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ABSTRACT

A group of 34 schools considered innovative in their compensatory reading programs were selected for teacher and pupil observation. The purpose of observation was to describe the classroom activities of the teachers and students in a large variety of types of reading classes so that the relationship between what teachers and students do during reading instruction, and how well the students learn to read, could be studied systematically. Results of the teacher observations appear in Part 1 of the report; categories include: purpose and goals of scales, scale development, data collection, mode and content of instruction, and a discussion of results. Part 2 contains the results of the student observation and includes: purposes and goals of observation, information on the coding of student behavior, development of the scale, selection and training of observers, data collection, and discussion of results. Part 3 is a summary of teacher and student behavior including: mode content categories, group content categories, contrast between teacher and student behavior, and summary and conclusion. (Author/RC)

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PR-74-5

THE CLASSROOM BEHAVIOR OF TEACHERS AND STUDENTS DURING COMPENSATORY READING INSTRUCTION

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Preface

This report describes the results of the classroom observations of teachers and students during compensatory reading instruction. This research was conducted as part of Contract OEC-0-71-3715 with the United States Office of Education.

The results of the teacher observations appear in Part I of this report. The results of the student observations appear in Part II of this report, and a summary of the classroom observations is presented in Part III of this report.

Several colleagues assisted in the management and training of the classroom observers for this project. In particular, we would like to thank Mr. Robert Douty, Mrs. Frieda Hardy, Mrs. Sandy Kerr, and Mr. Eric Landgraf for their valuable assistance with the training of the classroom observers. In addition, we would like to express our appreciation to Mr. Phil Harvey, Mr. Dan Norton, Mr. Reg Corder, Mrs. Peggy Smith, Mrs. Dottie Roy, and Mrs. Patricia Wheeler for their valuable assistance in obtaining the cooperation of the administrators and teachers who so graciously permitted the observers to learn their skills within their domains.

Most of all we would like to express our appreciation to the many administrators and teachers who permitted the classroom observers to observe reading classes in their schools during the conduct of this study. Their assistance in the study was the most important aspect of this phase of the project, and we are grateful for their patience and cooperation.

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Background and Objectives of the Compensatory Reading Project

In July 1971, Educational Testing Service was requested by the U.S. Office of Education to develop design and analysis plans for a study of compensatory reading programs in U.S. public schools. This planning activity took place during the period July-December 1971, and is described in the ETS Final Report for Contract No. OEC-0-71-3715 (A Descriptive and Analytic Study of Compensatory Reading Programs, January 1972). As a result of this planning period, a three phase study was conceptualized, beginning with a Spring 1972 questionnaire survey of compensatory reading programs offered in grades 2, 4, and 6 of the U.S. public schools. This survey had two major purposes: (1) to obtain for a representative national sample data descriptive of the instructional characteristics of such programs, the schools in which they were offered, and the instructional personnel who staffed them, and (2) to obtain a sample which could serve as a population list from which to draw a subsample of programs to be studied more intensively during the second phase of the study, conducted during the 1972-1973 school year. The study of the classroom behavior of teachers and students, described in this report, was embedded in this second phase of the Compensatory Reading Project.

The first step in Phase II was the selection of approximately 250 schools from the Spring 1972 sample to participate in a more comprehensive data collection program during the 1972-1973 school year. Data descriptive of compensatory and non-compensatory reading programs were again obtained via questionnaires similar to those administered in the Spring of 1972. In addition, Fall 1972 and Spring 1973 student scores on measures of reading achievement and attitudes toward reading were obtained. Analyses will be

performed to determine those characteristics of compensatory reading programs which tend to be associated with various levels of student outcomes.

The sample described above was a subsample of a nationally representative probability sample of schools. In addition, it was felt desirable to include in the study a small group of compensatory reading programs which were considered innovative by persons knowledgeable in the field of reading education. A group of 34 schools was selected, and data collection identical to that previously described was carried out. In addition, however, classroom observation data gathered by the procedures described in this report were obtained. Analyses relating these data to student achievement and attitudes toward reading are planned. The following section describes the selection of the 34 schools.

Selection of Compensatory Reading

Programs to be Observed

The Compensatory Reading Project sought the advice of many reading consultants during the planning and subsequent phases of the study. An Advisory Board also met regularly to review project plans and progress. The members of these two groups were requested to identify specific compensatory reading programs they considered innovative, and to submit names of other reading experts who were qualified to do the same. In addition, testing directors of several large city school systems were asked to nominate innovative programs. Finally, the U.S. Office of Education selected a small number of states whose Directors of Title I Programs were requested to submit nominations. Thus a pool of potential program participants was identified.

It was decided that programs would be selected in order to obtain a wide variety of instructional characteristics. Program effectiveness was not a criterion of selection, since in most cases no adequate data by which to judge effectiveness were available. Phone interviews were carried out with local individuals knowledgeable about program characteristics. Using the protocols resulting from these interviews, an initial screening of the programs was accomplished. Site visits to the remaining schools were carried out by ETS staff during the first six months of 1972, and comprehensive reports were developed for each visit. The final screening was carried out on the basis of information contained in these reports, still applying criteria of program characteristics, rather than effectiveness. The end result of this sequence or nomination, phone interview, and site visit was the selection of 34 schools in 21 cities, in which a total of 156 classes were observed.

PART I: The Classroom Behavior of Teachers During Compensatory Reading Instruction

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Purpose and Goals of the Observation Scales

The teacher and student observation instruments described in this project report were developed specifically for the study of reading activities in elementary school classrooms. These observation instruments were designed to describe the major types of interaction during reading instruction so that a systematic study of teachers' and students' activities during reading instruction could be undertaken.

The observation instruments were not designed to evaluate any teacher who was observed. The purpose of the observation instruments was to describe the classroom activities of the teachers and students in a large variety of types of reading classes so that the relationship between what teachers and students do during reading instruction, and how well the students learn to read, could be studied systematically.

Development of the Teacher Observation Scale - Reading

The first task involved in describing the classroom behavior of teachers and students during compensatory reading instruction was to develop the categories by which these classroom behaviors would be coded. The research team attempted to define categories of teacher and student behavior applicable to reading instruction in general, whether or not this instruction took place in compensatory reading classes.

In order to study systematically the types of activities that occurred in reading classes, a number of second, fourth, and sixth grade reading classes were observed during the developmental phase of this project. During these visits, a log was kept of the verbal and non-verbal activities that

took place. Each activity was then written on an index card so that these cards could be used later to aid in classifying the activities into categories of similar behaviors. The resulting categories were pilot tested and revised, and the Teacher Observation Scale - Reading finally contained two dimensions: (1) the Mode of instruction, and (2) the Content of instruction.

The Mode dimension described the manner in which materials or stimuli were presented to the students in the classroom by the teacher. The Content dimension described the type of activity being performed by the teacher. The main advantage of using this two-dimensional coding scheme was that an observer could simultaneously code both the Mode and the Content of an activity observed in the classroom.

The observation instrument was designed to be used with a stopwatch so that teacher behaviors in the classroom could be coded in fixed-time intervals. The observation procedure required the observer to observe the teacher and to code both the Mode and the Content of the event that was occurring at the end of every ten-second interval. The use of this observation instrument required the observer to be near enough to the teacher to hear what the teacher said, but hopefully not so near as to interfere with the teacher's behavior.

All of the classroom observers used a coding form which included the five Mode categories denoted by separate rows and the eleven Content categories denoted by the numbers 1-11. The observed activity was represented by placing the number of the Content category which described the observed activity into the appropriate Mode row on the coding sheet. A sample coding sheet is presented in Table 1.

Table 1

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Coding Sheet for Coding Mode-Content Combination

Content

Reading	Instructional	Other
1. Comp.	5. Sp.	9. Pos. Fdbk.
2. Pron. & Wd. Rec.	6. List. Inst.	10. Neg. Fdbk.
3. Lang. Struc.	7. Non-Rdg. Inst.	11. Ex.
4. Rdg. Sil.	8. Man. Inst.	

Mode	
T-talk	
Other Adult talk	
S-talk	
Mach.	
No-talk	

DEFINITIONS AND EXAMPLES OF THE CATEGORIES USED TO CODE TEACHER BEHAVIOR

The categories for the Teacher Observation Scale - Reading, were pilot tested by training elementary school teachers as observers and revised until the members of the research team were satisfied that the resultant categories accurately described the behavior of teachers during reading instruction. These categories were further revised until they were well-defined, distinct, and could be coded reliably by classroom observers. Brief definitions and examples of each of the coding categories are presented in the next section of this report; more complete descriptions are available elsewhere (Quirk, Nalin, & Weinberg, 1973).

The Mode of Instruction

The Mode of instruction refers to the manner in which activities in the classroom are presented to the students. The five Modes of instruction are: (1) Teacher-talk (T-talk), (2) Other Adult-talk, (3) Student-talk (S-talk), (4) Machine, and (5) No-talk.

The "T-talk" Mode of instruction refers to those instances in which the teacher is talking. (Example: Teacher: "How do you spell the word beagle?")

The "Other Adult-talk" Mode of instruction refers to those instances in which the teacher is paying attention to an other adult in the classroom (i.e., an aide, the principal) who is talking. (Example: The teacher and students listen as an aide reads a story out loud to the class.)

The "S-talk" Mode of instruction refers to those instances in which the teacher is paying attention to the student who is talking. (Example: A student says, "How do you say this word?" as the teacher watches him.)

The "Machine" Mode of instruction refers to those instances in which the teacher is paying attention to a machine which is either presenting verbal stimuli or silently presenting pictures or words to the students. (Example: The students and the teacher are watching a controlled reader project sentences onto a screen.)

The "No-talk" Mode of instruction refers to those instances in which the teacher is not paying attention to any verbal activity in the classroom nor paying attention to a machine. (Example: The teacher is watching the students who are reading a story silently to themselves.)

The simultaneous occurrence of two or more Modes of instruction presented a special coding problem. In order to increase the reliability of the observers' codings, a hierarchy of Modes of instruction was established according to the following sequence: T-talk, Other Adult-talk, S-talk, Machine, No-talk. Whenever two or more Modes of instruction occurred at the same time, the observers were instructed to code only that Mode which occurred first in this sequence. For example, if both the teacher and the students were reading a story aloud, this activity would be coded as T-talk, since this Mode occurs first in this predetermined hierarchy.

The Content of Instruction

The Content of instruction refers to the type of instructional or non-instructional activity to which the teacher is paying attention in the classroom. There are eleven categories used to describe the Content of instruction.

Four of these categories are related specifically to reading activities (Comprehension, Pronunciation and Word Recognition, Language Structure, and Reading Silently). For the purposes of this observation instrument, reading activities covers those activities in the classroom which include a printed stimulus, whether this stimulus is in the form of letters of the alphabet, combinations of letters, words, phrases, sentences, or paragraphs.

Seven Content categories are used to describe other instructional activities (Spelling, Listening Instruction, Non-Reading Instruction, Management Instruction, Positive Feedback, Negative Feedback, and Extraneous). Brief definitions together with an example of each category will now be presented.

Category 1: Comprehension. This category refers to those instances in which the teacher, students, or others in the classroom demonstrate understanding of what the students have read. It includes questions, statements, or actions such as defining a word, giving the meaning of a sentence, or interpreting a story. (Example: The teacher points to the word buff on the board and says, "What does this word mean?")

Category 2: Pronunciation and Word Recognition. This category refers to those instances when some person or a machine is pronouncing out loud letter combinations, words, phrases, sentences, or stories which the students can see or are reading. This category also includes phonic rules which deal with pronunciation symbols and the rules for vowels, consonants, and combination sounds. In addition, the category includes non-verbal actions such as pointing, writing, coloring, and the like that persons or

machines in the classroom may use to indicate questions or answers to Pronunciation and Word Recognition problems. (Example: The teacher says, "How do you pronounce this word?")

Category 3: Language Structure. This category refers to the structure of a word, phrase, sentence, or paragraph where the students have read or seen the material being discussed. It involves punctuation, grammatical construction, and syllabification when it is done for the purpose of hyphenating a word. (Example: The teacher explains neither-nor construction to the students.)

Category 4: Reading Silently. This category refers to instances in which the teacher is watching the students either read silently to themselves or look silently at printed material. (Example: The teacher watches the students read a story silently to themselves.)

Category 5: Spelling. This category refers to instances in which words, or parts of words, are formed one letter at a time either out loud, to oneself, on the board, or on paper. It also includes activities that have to do either with recognizing individual letters of the alphabet or alphabetizing activities. The dictation of words or sentences by the teacher or students so that the students can write out these words are also included as Spelling activities. Spelling also refers to activities such as the teacher writes a story which a student makes up and dictates to her. (Example: The teacher asks, "How do you spell pluck?")

Category 6: Listening Instruction. This category includes questions, statements, and actions which refer to reading material that has been read to the students, or that is about to be read by the students, but which

they themselves have not seen nor read. This category also includes instances in which the teacher (or a student) is reading aloud to the students when the material that is being read cannot be seen by these students. (Example: The teacher reads a story aloud to the students. The students do not have their books open.)

Category 7: Non-reading Instruction. This category refers to activities in the classroom which are instructional in content but are neither specific reading activities nor activities which refer to material which has been read to the students. (Example: The teacher says, "See the new growth on this piece of moss.")

Category 8: Management Instruction. This category includes transitional activities, managing activities, and directing activities done by the teacher (or other persons or a machine) that facilitate the instruction taking place during reading or other instructional activities. (Example: The teacher says, "Open your books to page 103 and read the story.")

Category 9: Positive Feedback. This category includes all instances in which the teacher, an other adult, or a machine praises or encourages the behavior of students. (Example: The teacher says, "Very good, Mary.")

Category 10: Negative Feedback. This category includes all actions by the teacher, an other adult, or a machine which tell the student that his answer is wrong or which discipline the student in some way. (Example: The teacher says, "Class, be quiet.")

Category 11: Extraneous. This category includes irrelevant and incidental comments or actions that are not codeable in any of the other categories. (Example: The teacher counts lunch money.)

These Content categories required several special coding rules that were necessary to permit the observers to recognize the categories as discrete. These coding rules are described in detail in the observer's manual (Quirk, Nalin, & Weinberg, 1973), but one of them is worth noting.

This rule dealt with a "carry-over effect" in which pauses in instruction were coded as part of the Content category that was the focus of the instruction. For example, if the teacher asked the students how to pronounce a word written on the board and was waiting for the students to answer this question, the pause would be coded as Content category 2 (Pronunciation & Word Recognition). In this way, silences in the classroom which occurred at the moment that the sweephand of the stopwatch crossed the ten-second interval were coded as part of the ongoing instruction.

SELECTION OF CLASSROOM OBSERVERS

The classroom observers for this project were selected in each city with the help of a local coordinator or central office staff member of the Compensatory Reading Project. One coordinator from each city participating in the classroom observations was asked to suggest the names of people who would be willing to serve as classroom observers during the project.

These local coordinators were asked to suggest two teacher observers in those cities in which only the teachers were to be observed; they were asked to suggest five observers in those cities in which both teachers and students were to be observed. In the latter case, two of the observers

were trained to code teacher behavior, two observers were trained to code student behavior, and one observer was trained to code both teacher and student behavior.

The local coordinators were asked to attempt to recruit observers from the substitute high school teacher list in their district or from the substitute elementary teacher list in their district if they were unable to obtain enough observers from the high school substitute teacher list. Some of the local coordinators were not able to obtain all of their observers from either of these lists and had to find their observers by other methods. Still other coordinators were not able to find all of the observers that they were asked to recruit, and this led to the classroom observations being spread out over several months in a few of the cities participating in the study because fewer observers were available to collect the classroom observation data in these cities.

A total of 46 observers (10 men and 36 women) were trained on the Teacher Observation Scale- Reading. They ranged in age from 23 to 67 with a median age of 34 years. Forty-five of these observers had graduated from college, and 35 of them had completed student teaching. Of the 31 observers who had been full-time teachers at one time or another, 13 had taught in elementary schools, three had taught in secondary schools, while 15 had experience teaching in both elementary and secondary schools. Two of these teachers were in their first year of teaching, four had taught for one year, 11 had two or three years of teaching experience, and 13 had more than three years of teaching experience. Seven other observers had worked as a substitute teacher or had taught part time. One other observer had

taught full time for two years and had worked as a substitute teacher for 15 years.

THE TRAINING OF THE TEACHER OBSERVERS

Two teams, each consisting of a trainer and an assistant trainer, conducted the training programs for the Teacher Observation Scale - Reading, and training programs were located in three different cities: Princeton, New Jersey; Evanston, Illinois; and Berkeley, California. A total of six training sessions were conducted during the three-week period from October 15 through November 3, 1972. Each training session lasted five days. Eight of the observers who were trained in Evanston, Illinois were trained on both the Teacher and Student Observation Scales during the last two weeks of the training.

During each training program, both written and audio-tape practice exercises were used in conjunction with actual classroom observations. Practice classroom coding was included each morning in the training program by having the observers code in pairs, and the reliabilities of the morning's coding were computed each afternoon with the help of a portable computer terminal so that the observers could receive daily feedback on their coding progress. The total time spent in training the observers during each training session was approximately 35 hours. A detailed description of the training program is available elsewhere (Quirk, Nalin, & Weinberg, 1973).

The procedure for the reliability study on the last morning of each training session required the observers to work in pairs and to use a single stopwatch to synchronize their codings. These pairs of observers

coded the teacher's behavior every ten seconds for a 20-minute observation period. Each observer was then paired with a different observer for a second observation period, and a different observer for a third observation period. This permitted each observer's coding behavior to be studied in separate 20-minute observation periods with three different observers. Forty-three of the observers were paired in this manner, while three of the observers completed only two observation periods of only 15 minutes each because a film was shown to the classes being observed during the third week of the training in Princeton.

The results of the reliability study are presented in Table 2. The individual reliabilities of each pair of observers is reported in Table 2, as well as the total reliability of each observer across all of the other observers with whom he was paired. This latter reliability coefficient was computed by taking the total frequency of each category for each observer across all of his pairings during the reliability study and comparing these codings to the total frequency for each category for all of the other observers with whom he was paired. All reliability coefficients reported in Table 2 are Scott's π coefficients (Scott, 1955). One of the observers trained in Berkeley during week 3 of the training was not permitted to collect any classroom observation data during the study because his reliability coefficients were judged to be too low. For the remaining 45 observers trained on the Teacher Observation Scale - Reading, their reliabilities when computed by using the total codings for all of the observers with whom they were paired during the reliability study were as follows: the reliabilities for the Mode of instruction ranged from

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TABLE 2

TEACHER OBSERVER RELIABILITY ON THE LAST DAY OF TRAINING
(Scott's π coefficients)

Week 1

Training Site	Observer	Paired With Observers	Observer Pairs M	C	M-C	Total across observers with whom paired M	C	M-C
Evanston (10 observers)	A	J	.89	.77	.70	.93	.74	.79
		D	.84	.90	.79			
		C	.89	.68	.65			
	B	C	.93	.80	.65	.96	.88	.80
		J	.91	.81	.80			
		H	.96	.79	.70			
	C	H	.91	.91	.85	.97	.81	.78
	D	H	.85	.88	.85	.89	.89	.82
		J	.84	.64	.52			
	E	G	.96	.82	.86	.94	.87	.83
		I	.87	.84	.87			
		F	.78	.62	.57			
	F	I	.94	.81	.89	.81	.68	.71
		G	.87	.62	.67			
	G	I	.80	.74	.70	.92	.82	.80
	H					.96	.88	.85
	I					.96	.91	.91
	J					.94	.81	.80
Berkeley (9 observers)	X	B	1.0	1.0	1.0			
	A	C	.97	.98	.96	.96	.97	.96
		D	.94	.97	.94			
	B	C	.94	.85	.87	.95	.90	.90
		D	.95	.84	.86			
	C	D	.97	.97	.97	.97	.89	.91
	D					.97	.93	.94
	E	F	.92	.92	.85	.97	.88	.89
		G	.90	.91	.90			
		H	.95	.98	.96			
		I	.95	1.0	.97			
	F	H	.96	.96	.95	.96	.96	.94
		I	.87	.90	.90			
	G	H	1.0	1.0	1.0	.97	.95	.95
		I	.95	.93	.94			
	H					.98	.98	.96
	I					.95	.94	.94

Week 2

Training Site	Observer	Paired With Observers	Observer Pairs M	C	M-C
Princeton (8 observers)	A	B	.98	.97	.98
		C	.96	.96	.94
		D	.98	.87	.94
	B	D	.97	.92	.93
		C	.99	.98	.97
	C	D	.99	.92	.81
	D				
	E	F	.76	.62	.41
		H	.81	.76	.78
		G	.71	.64	.61
	F	G	.88	.84	.82
		H	.80	.79	.70
	G	H	.88	.69	.68
	H				
Evanston (8 observers)	A	B	.83	.90	.84
		C	.89	.91	.86
		D	.98	.94	.95
	B	C	.75	.67	.69
		D	.92	.91	.91
	C	D	.93	.97	.95
	D				
	E	F	.95	.69	.65
		G	.70	.83	.67
		H	.86	.71	.69
	F	G	.90	.82	.78
		H	.97	.93	.94
	G	H	.92	.89	.88
	H				

M = Mode of Instruction

C = Content of Instruction

M-C = Mode-Content Combination

*Observer X is the head trainer who paired with the trainees when an odd-numbered total of observers was trained in a site.

[1] Observer F of week 3 in Berkeley was not permitted to collect any classroom observation data during the study because the reliability coefficients were not

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TABLE 2

TEACHER OBSERVER RELIABILITY ON THE LAST DAY OF TRAINING

(Scott's π coefficients)

Week 2									Week 3								
	Observer	Paired With Observers	Observer Pairs M	C	M-C	Total across observers with whom paired M	C	M-C	Training Site	Observer	Paired With Observers	Observer Pairs M	C	M-C	Total across observers with whom paired M	C	M-C
		B	.98	.97	.98						B	.95	.89	.89			
	A	C	.96	.96	.94	.98	.96	.96		A	B	.98	.95	.97	.99	.97	.97
		D	.98	.87	.94						C	.97	.68	.92			
	B	D	.97	.92	.93	.98	.98	.98		B	D	.97	.95	.97	.95	.95	.92
		C	.99	.98	.97						C	.86	.81	.83			
	C	D	.99	.92	.81	.98	.96	.91		C	D	.86	.95	.90	.88	.88	.88
	D					.99	.68	.76		D					.94	.95	.94
		F	.76	.62	.41						F	.65	.36	.28			
	E	H	.81	.76	.78	.79	.80	.72	Berkeley (8 observers)	E	H	.87	.85	.83	.89	.78	.74
		G	.71	.64	.61						G	1.0	1.0	1.0			
	F	G	.88	.84	.82	.91	.85	.73		F[1]	G	.72	.69	.57	.70	.66	.59
		H	.80	.79	.70						H	.69	.46	.49			
	G	H	.88	.69	.68	.85	.88	.83		G	H	.98	.98	.93	.88	.87	.81
	H					.89	.79	.80		H					.89	.83	.82
		B	.83	.90	.84						C	.83	.87	.80	.87	.86	.84
	A	C	.89	.91	.86	.91	.93	.90		A	X	.75	.85	.80			
		D	.98	.94	.95				Princeton (3 observers)		C	.58	.31	.48	.79	.54	.63
	B	C	.75	.67	.69	.85	.88	.86		B	X	.88	.61	.67			
		D	.92	.91	.91					C					.88	.68	.67
	C	D	.93	.97	.95	.98	.93	.92		X*							
	D					.94	.94	.94									
		F	.95	.69	.65												
	E	G	.70	.83	.67	.88	.84	.81									
		H	.86	.71	.69												
	F	G	.90	.82	.78	.93	.87	.85									
		H	.97	.93	.94												
	G	H	.92	.89	.88	.89	.90	.85									
	H					.97	.88	.87									

of observers was trained in a site.

data during the study because the reliability coefficients were not sufficiently high

.79 to .99 with a median coefficient of .94; for the Content of instruction, the reliabilities ranged from .54 to .98 with a median coefficient of .88; for the Mode-Content dimensions combined into a two-dimensional set of categories (5 Mode categories x 11 Content categories), the reliabilities ranged from .63 to .98 with a median coefficient of .85.

THE SELECTION OF THE READING CLASSES TO BE OBSERVED

For each reading program selected to be studied within each city, a knowledgeable central office staff member or the local reading coordinator was asked to nominate one or more schools in the district that were using the reading program in a typical manner. These recommendations were an attempt to receive suggestions about the typical school or schools in the district using the selected compensatory reading program.

Within each school that was designated to be included in the classroom observations, the specific reading classes in grades 2, 4, 6 to be observed were selected by a logical process that included a number of variations.

A list of teachers and the times of their reading classes were prepared for each of the schools. It was decided that each city would have a maximum of nine classes observed in order to reduce the amount of time it would take to collect the classroom observation data across all the cities. If there were nine or less than nine classes available to be observed in a school, all of the classes were selected to be observed. When there were more than nine classes available to be observed in a school, a set of decision rules was used to select the classes to be

observed. Within each school, if there were several teachers teaching several classes at each of these grade levels, the classes to be observed were randomly selected within each grade level. If there were only a few classes at a grade level, all of these classes were selected for observation. When students in a class were from several grade levels, these classes were not selected if sufficient classes were available containing students at only one of the grades 2, 4, or 6. If bilingual classes were identified at the sampling stage, they were automatically excluded from the sample. If a teacher was teaching several reading classes at the same grade level, only one of this teacher's classes was selected to be observed. It was not possible to include classes from each of the grades 2, 4, 6 in every school in the sample because not all of the schools were offering compensatory reading classes to all of these grade levels.

The local coordinator was asked to notify the teachers selected to participate in the study that their class would be visited for a total of 22 minutes on each of nine separate days over a period of several weeks. He was asked to explain that these visits would be unannounced, that the data collected on any individual teacher would not be reported to any school official or be seen by anyone other than the observers and the research team, and that the teachers should proceed with their normal activities whether or not the observers were present. The observers were also informed during training of the confidentiality of the information which they would be gathering.

DATA COLLECTION

The classroom observation data for the Teacher Observation Scale - Reading were collected from October 29, 1972 until March 1, 1973. A total of 156 classes in 34 schools in 21 cities were selected to be observed. There were 76 second grade classes, 47 fourth grade classes, and 33 sixth grade classes selected to be observed. Each class was supposed to be observed on nine separate days for 15 minutes of coding on each day for a total of 2 1/4 hours of coding in each class. The distribution of these classes by type of reading program is reported separately by grade level in Table 3.

The observers were asked to distribute these nine observations to each class so that three of them occurred during the first third of the reading period, three of them occurred during the middle third of the reading period, and three of them occurred during the last third of the reading period.

During each observation visit, the observers were instructed to spend the first five minutes of the 22-minute observation period orienting themselves to the activities going on in the classroom. The observer then coded for 15 minutes. When the coding was completed, the observer used the final two minutes of the observation period to fill out a Classroom Environment Form which described the physical characteristics of the classroom. There were nine observations completed on 135 of these 156 classes (87 percent completion rate).

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TABLE 3

SELECTION OF COMPENSATORY READING CLASSES BY PROGRAM FOR TEACHER OBSERVATION

Type of Reading Program	Number of Classes Selected to be Observed			Number of Classes Observed on Nine Separate Occasions		
	Grade 2	Grade 4	Grade 6	Grade 2	Grade 4	Grade 6
Special Reading Program	2	2	2	2	2	2
Individualized Prescribed Reading Program	4	2	3	4	2	3
Project Read Harcourt-Brace Basal Program Project LEIR: Language Experience in Reading Title I	4	3	2	4	3	2
Title I Wisconsin Design	5	5	4	5	5	4
Random House HILINC (High Intensity Learning Centers)	0	4	4	0	4	4
CAI (Computer Assisted Instruction)	3	0	0	3	0	0
Mobile Reading Classroom: Corrective Reading and Development of Positive Self-Concept	1	3	0	0	0	0
Prolexia Miller-Unruh	7	2	0	5	0	0
Right to Read	4	2	3	3	2	3
Special Reading Program	3	3	3	3	3	3
Special Reading Program Individualized Reading Program State Text State Text and Sullivan Special Reading Program	2	3	4	2	3	3*
Degateno Reading Program--Words in Color	3	3	2	3	3	2
Distar Open Court	7	0	0	0	0	0
Title I	3	3	0	3	3	0
Distar Houghton-Mifflin	3	3	3	3	3	3
Alpha One	2	0	0	2	0	0
Reading Tutorial Program	2	3	0	2	3	0
Sullivan Scott-Foresman	4	2	3	3	2	3
Special Reading Program	6	2	0	6	2	0
Exemplary Center of Reading Instruction Project to Improve Reading Performance in Utah Schools	4**	0	0	1	0	0
Exemplary Center of Reading Instruction Project to Improve Reading Performance in Utah Schools	7	2	0	7	2	0
Totals:	76	47	33	61	42	32

*Spanish-speaking teacher
**Four classes combined into one class

An observer trained to code on the Teacher Observation Scale - Reading, and an observer trained to code on the Student Observation Scale - Reading were permitted to work in pairs during the data collection. The observers worked in pairs for 31 percent of these classroom observation periods. No substitute teachers were observed during this study.

Incomplete Data

Of the total of 156 classes which were selected to be observed with the Teacher Observation Scale - Reading, 135 of these classes were observed on nine separate days and were included in this study. The classroom observations for 21 classes were not able to be completed for a variety of reasons. Seven classes were dropped because the observer who was trained to observe these classes accepted a full-time job and was unable to complete the observations for each class. Four classes were dropped because the reading classes were conducted in a mobile laboratory which moved to a different school before the observations were completed. Four other classes were dropped because the teachers who taught these classes stopped giving compensatory reading instruction to those classes.

In one city, four classes which were each observed nine times each, were combined into one class for this study because the teacher met with the same students for approximately 2 1/2 hours every day; it was decided that this class would be treated as a single class rather than as four separate classes. The nine observations used to represent this class were taken from the pool of 36 observations made for the four sections of this class by ranking the observations chronologically and selecting the first nine observations made by the observers. If more than one

observation was made on a particular day, the first observation of that day was chosen.

One class which was observed nine times was dropped because the teacher of the class spoke Spanish at times during the reading period. One class was dropped because the teacher taught other teachers' classes as well as her own and there were not enough observations of this teacher when she was teaching her designated class. Finally, one class was dropped because student teachers were instructing the class; the teacher of this class was a "group leader" of several teachers and was not present in his reading class a total of nine occasions during the times when the observers attempted to observe that class.

DISCUSSION OF RESULTS

The results of the classroom observations of the teacher behavior for the 135 compensatory reading teachers are summarized in Table 4. The data for the Mode of instruction and the Content of instruction are summarized in Figure 1 as well. In Table 4, the percent of time spent in each category across teachers appears in the first row of each cell; this percentage was computed by dividing the total frequency of occurrence of each category across the teachers by the total number of codings across all of the teachers (108,591 codings). The resulting number represents the average percent of time spent in each category across all of the visits to these 135 compensatory reading classes. In Table 4, the standard

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TABLE 4

PERCENTAGE OF TIME SPENT ACROSS ALL TEACHERS (N = 135) IN EACH MODE - CONTENT CATEGORY IN TERMS OF TEACHER BEHAVIOR

Mode of Instruction	Content of Instruction											
Category	Comp.	Pron. & Wd. Rec.	Lang. Struc.	Rdg. Sil.	Sp.	List. Inst.	Non-Rdg. Inst.	Man. Inst.	Pos. Fdbk.	Neg. Fdbk.	Ex.	Totals
Teacher-Talk	6.32 (5.28) [5]	8.18 (6.23) [4]	1.46 (1.99) [17]	0.07 (0.04) [41]	3.77 (5.27) [7]	2.15 (3.17) [13]	1.58 (2.37) [16]	14.83 (7.23) [1]	2.76 (2.17) [10]	2.70 (1.90) [11]	1.22 (1.01) [18]	45.04 (9.57) [1]
Other Adult-Talk	0.03 (0.13) [45]	0.14 (0.54) [34]	0.01 (0.12) [50]	0.00 (0.03) [51]	0.03 (0.15) [46]	0.03 (0.25) [47]	0.08 (0.64) [40]	0.38 (0.90) [28]	0.02 (0.10) [48]	0.02 (0.07) [49]	0.26 (0.49) [33]	1.01 (1.80) [5]
Student-Talk	4.38 (3.71) [6]	14.40 (9.80) [2]	0.71 (1.19) [26]	0.06 (0.35) [42]	2.32 (3.21) [12]	0.50 (1.03) [27]	1.02 (2.03) [21]	2.04 (2.39) [14]			1.09 (1.29) [19]	26.53 (10.42) [2]
Machine	0.10 (0.77) [36]	0.37 (1.52) [30]	0.09 (0.56) [38]	0.09 (0.76) [37]	0.32 (1.73) [32]	0.05 (0.32) [43]	0.77 (2.26) [25]	0.09 (0.55) [39]	0.0 (0.01) [52]	0.0 (0.0) [53]	0.04 (0.25) [44]	1.93 (4.06) [4]
No-Talk	1.08 (1.17) [20]	3.06 (4.20) [8]	0.86 (2.50) [24]	1.69 (2.73) [15]	3.04 (3.90) [9]	0.33 (0.59) [31]	0.99 (2.68) [23]	12.90 (11.12) [3]	0.14 (0.29) [35]	0.38 (0.47) [29]	1.01 (2.92) [22]	25.49 (13.00) [3]
Totals	11.93 (8.97) [3]	26.15 (15.85) [2]	3.13 (5.23) [7]	1.92 (2.87) [11]	9.48 (10.42) [4]	3.05 (3.87) [9]	4.44 (7.03) [5]	30.24 (18.56) [1]	2.93 (2.27) [10]	3.10 (2.17) [8]	3.63 (4.07) [6]	

The weighted percent of time spent in each category across teachers appears in each cell. The standard deviation across teachers of the percent of time spent in each category by each teacher appears in parentheses in each cell. The rank order of occurrence of each category appears in the box in the lower-right corner of each cell.

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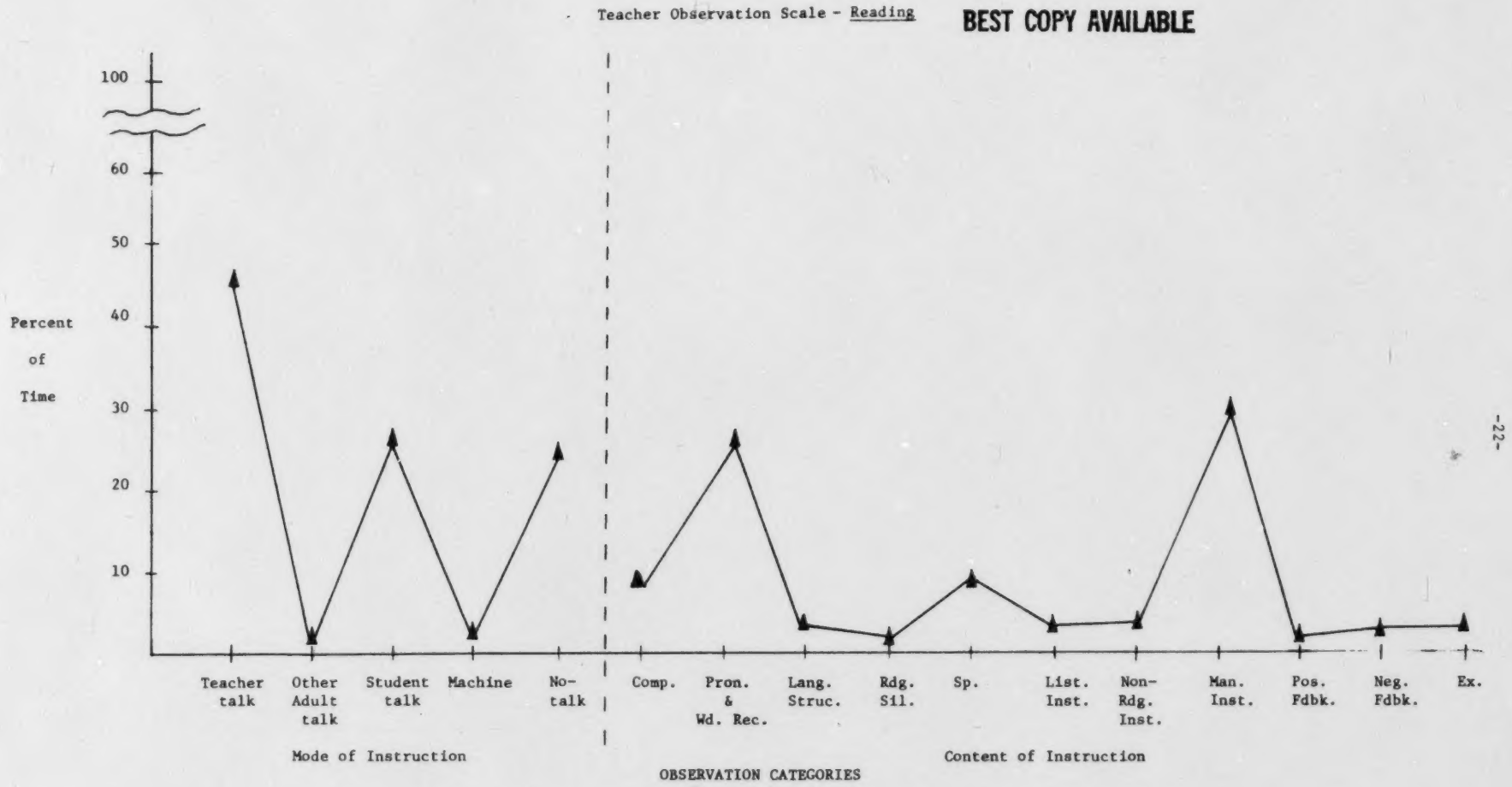

Figure 1. Percent of Time Spent in Each Activity by the Compensatory Reading Teachers

deviation across teachers of the percent of time spent in each category by each teacher appears in parentheses in each cell. The rank order of the percent of time for each subcategory within its corresponding major category appears in the box in the lower-right corner of each cell.

A total of 810 events were supposed to be coded for each teacher (9 visits per teacher x 15 minutes of coding per visit x 6 codings per minute). The total number of actual events coded per teacher ranged from 709 to 820 events with a mean of 804.38 events and a standard deviation of 14.36.

One change in the coding of the observers was made during the processing of the data. The definitions of the Content categories for both Positive Feedback (category 9) and Negative Feedback (category 10) required that the teacher be presenting one of these types of feedback or paying attention to one of these types of feedback being presented by some other adult or a machine. These definitions did not permit one student to present Positive or Negative feedback to another person, and these activities were supposed to be coded as Extraneous (category 11). The observers made this error in coding a total of 19 times for category 9 and 44 times for category 10, and these 63 codings (out of the total of 108,591 codings) were changed to S-talk category 11 in processing the data.

Summary of the Results for the Mode of Instruction

The results of the observations of the Mode of instruction indicated that the teachers were talking 45% of the time. The teachers were paying attention to students talking 26% of the time. No one was talking 25% of

the time. The teacher was paying attention to a machine less than 2% of the time, and the teacher was paying attention to another adult who was talking 1% of the time. Since the observers were trained to code each event into one, and only one, Mode of instruction according to the hierarchy of categories presented for the Mode of instruction in Table 4, this coding rule did have some influence on these results.

Summary of the Results for the Content of Instruction

In terms of the Content of instruction dimension, the teachers in the compensatory reading classes spent the most time in Management Instruction (30%). The next most frequent activities involved specific reading instruction in Pronunciation and Word Recognition activities (26%) and Comprehension activities (12%). Spelling was the next activity in frequency (10%), while Non-Reading Instruction was the next frequent activity (4%). The teachers spent less than 4% of their time in the remaining activities: Extraneous activities (3.6%), Language Structure (3%), Negative Feedback (3%), Listening Instruction (3%), Positive Feedback (3%), and Silent Reading (2%).

These Content categories could be combined in a number of ways to determine the percent of time that the teachers spent in reading activities. If Content categories 1-4 (Comprehension, Pronunciation and Word Recognition, Language Structure, Reading Silently) are combined, this would indicate that the teachers spent 43% of their time in reading instruction activities; if Content categories 5 (Spelling) and 6 (Listening Instruction) are also included, the teachers spent 56% of their time in reading and reading-related activities.

Summary of the Results for the Two-Dimensional Mode-Content of Instruction

The two-dimensional summary of teacher behavior presented within the central cells of Table 4 provide some interesting results. If the discussion is restricted to those two-dimensional categories in which the teachers spent at least 3% of their time, the teachers focused their behavior within nine categories. The teachers spent the greatest amount of time in talking and presenting Management Instructions to the students (15%). The next most frequent category involved the students talking in terms of Pronunciation and Word Recognition activities (14%). Pauses in instruction in which no one was talking during Management Instruction represented the third most frequent category (13%). The fourth and fifth most frequent categories both involved the Teacher-talking in terms of Pronunciation and Word Recognition activities (8%) and Comprehension activities (6%). Student-talk during Comprehension activities were the next most frequent category (4%), followed by Teacher-talk during Spelling activities (4%), No One talking during Pronunciation and Word Recognition activities (3%), and No One talking during Spelling activities (3%).

When these nine most frequently occurring two-dimensional categories are considered in terms of the Mode of instruction, they represented a total of 71% of the Mode of instruction activities in the classroom, which were split among Teacher-talk activities (33%), No One talking activities (19%), and Student-talk activities (19%).

When these same nine two-dimensional categories were considered in terms of the Content of instruction, they also represented a total of 71% of the Content of instruction activities in the classrooms; these activities

were split among Management Instruction activities (28%), Pronunciation and Word Recognition activities (26%), Comprehension activities (11%), and Spelling activities (7%).

Part II: The Classroom Behavior of Students During Compensatory Reading Instruction

Purpose and Goals of Observing Students During Reading Instruction

The purpose of observing the behavior of the students during compensatory reading instruction was to study the similarity between the activities of the teachers and those of the students in the compensatory reading classes. From the student's point of view, what is important to his development in reading ability is not only the activities which the teacher is performing, but also those activities which become his personal experiences; in short, those stimuli to which the student is attending in the classroom become the focus of his particular learning experiences. For example, if the teacher is presenting an explanation to the class dealing with the comprehension of a paragraph, while several of the students are working math problems at their desks, it is the mathematics problems that become the focus of the learning behavior of these students, and not the teacher's comprehension activities. By observing the pattern both of student behavior in the classroom as well as the teacher's behavior, it is possible to describe both of these important aspects of behavior.

Development of the Student Observation Scale - Reading

The categories of the Student Observation Scale - Reading were designed to apply to student reading activities whether or not these activities took place in compensatory reading classes. The categories for the Student Observation Scale were developed in the same way as those for the Teacher Observation Scale. The members of the research team visited a number of second, fourth, and sixth grade reading classes and kept a log of the verbal and non-verbal activities which took place during these visits.

Each activity was then written on a separate index card so that these cards could be used later to aid in classifying the activities into categories of similar behaviors. The resulting categories were pilot tested and revised until the Student Observation Scale - Reading finally included two dimensions: (1) the Group of instruction, and (2) the Content of instruction.

The Group dimension described the type of group the student was paying attention to. The Content dimension described the kind or type of activity being performed by the student. The main advantage of using this two-dimensional coding scale was that an observer could code simultaneously both the Group and the Content of an activity being observed in the classroom.

This observation instrument was designed to be used with a stopwatch so that student activities in the classroom could be coded in fixed-time intervals. The observation procedure required the observer to watch a different student during each 15-second interval and to decide what activity each student was engaged in as the sweep-hand of the stopwatch completed each 15-second interval.

A 15-second interval was selected after pilot tests indicated that the observers required this much time in order to be able to code reliably a different student during each time-interval. In general, the procedure that was followed was for the observer to imagine the physical arrangement of the classroom as being composed of four quadrants:

A	B
C	D

After deciding (at the observer's discretion) on the order in which the quadrants should be observed (e.g., ABCD), the observer was to imagine that a two-foot wide visual path was formed from left-to-right in each quadrant. The students in each quadrant were each observed for a 15-second interval. The students within each quadrant were selected for observation by the observer who was to sweep a path visually from left-to-right in the quadrant and to code each student who appeared within these paths. In some cases the locations of work centers or discussion tables defined an area of the classroom and the general principle of reducing the classroom into smaller physical units was adopted to fit each of the classrooms. During each visit in every classroom the observer coded the behavior of a different student every 15 seconds until the whole class had been observed, at which time the procedure was repeated until a total of 15 minutes of coding by the observer had taken place .

All of the student observers used a coding form which included the Group categories denoted by four columns (Teacher, Other Adult, Peer, Alone) and the twelve Content categories denoted by the numbers 1-12. The observed activity was represented by placing the number of the Content category which described the observed activity into the appropriate Group column on the coding sheet. A sample coding sheet is presented in Table 5. The use of this observation instrument required that the observer be near enough to each student to hear what that student said, but hopefully not so near as to interfere with the student's behavior.

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Table 5

Coding Sheet for Coding Group-Content Combination

Name of Observer_____

Date_____

Teacher_____

Time Start_____Finish_____

Third of Class 1 2 3 SP

School_____

Grade_____

City_____

Content

Reading

1. Comp.
2. Pron. & Wd. Rec.
3. Lang. Struc.
4. Rdg. Silently

Other Instructional

5. Spelling
6. Writing
7. List. Inst.
8. Non Rdg. Inst.
9. Man. Inst.

Other

10. Pos. Fdbk.
11. Neg. Fdbk.
12. Ex.

Group

Teacher	Other Adult	Peer	Alone

DEFINITIONS AND EXAMPLES OF THE CATEGORIES USED TO CODE STUDENT BEHAVIOR

The categories of the Student Observation Scale - Reading were pilot tested by training elementary teachers as observers and revised until the resultant categories accurately described the behavior of students during reading instruction. These categories were further revised until they were well-defined, distinct, and could be coded reliably by classroom observers. Brief definitions and examples of each of the coding categories are presented in the following sections of this report, and more complete descriptions are available elsewhere (Quirk, Weinberg, & Nalin, 1973).

The Group of Instruction

The Group of instruction refers to the type of classroom setting or group in which the activities of the student being observed take place. The four Groups of instruction are: Teacher, Other Adult, Peer, and Alone.

The "Teacher" Group of instruction refers to those instances in which the student being observed is paying attention to the teacher or is paying attention to a group that includes the teacher. (Example: The student being observed is watching the teacher who is reading a story aloud to the class.)

The "Other Adult" Group of instruction refers to those instances in which the student being observed is paying attention either to an adult other than the teacher or to a group that contains an adult other than the teacher. (Example: An aide is telling the student being observed how to spell the word trough.)

The "Peer" Group of instruction refers to those instances in which the student being observed is paying attention to a group which contains his peer or peers, but does not contain either the teacher or an other adult. (Example: The student being observed is reading a story aloud to another student.)

The "Alone" Group of instruction refers to those instances in which the student being observed is not paying attention to any group, teacher, other adult, or peer in the classroom, but is paying attention to his own thoughts, to his own set of materials, or to a machine when he is by himself. (Example: The student being observed is doing spelling exercises alone at his desk.)

Whenever the student being observed was paying attention to a group that contained both the teacher and an other adult, the observers were trained to code this situation as the Teacher Group even if the other adult was speaking. When the student being observed was paying attention to the observer the observers were instructed to code these instances as Alone.

The Content of Instruction

The Content of instruction refers to the type of instructional or non-instructional activity in which the student being observed is engaged. There were twelve categories used to describe the Content of instruction. Four of these categories are related specifically to reading activities: Comprehension, Pronunciation and Word Recognition, Language Structure, and Reading Silently. For the purposes of this observation instrument,

reading activities referred only to those activities in the classroom which included a printed stimulus in the form of letters of the alphabet or combinations of letters, words, phrases, sentences, and paragraphs.

Eight other categories were used to describe other instructional activities: Spelling, Writing, Non-Reading Instruction, Listening Instruction, Management Instruction, Positive Feedback, Negative Feedback, and Extraneous. Brief definitions and one example of each of the Content categories will now be presented.

Category 1: Comprehension. This category refers to those instances in which the teacher, students, machines or other persons in the classroom demonstrate understanding of what the students have read. It includes questions, statements, or actions such as defining a word, giving the meaning of a sentence, or interpreting a story. (Example: The student being observed says, "In that story, Bob liked the lion.")

Category 2: Pronunciation and Word Recognition. This category refers to those instances when some person or a machine is pronouncing aloud letter combinations, words, phrases, sentences, or stories which the student being observed can see or is reading. This category also includes phonic rules which deal with pronunciation symbols and rules for vowel, consonant, and combination sounds. In addition, this category includes non-verbal actions such as pointing, writing, coloring, and the like that persons or machines in the classroom use to indicate questions or answers to Pronunciation and Word Recognition problems. (Example: The student being observed asks, "How do you pronounce this word?")

Category 3: Language Structure. This category refers to the structure of a word, phrase, sentence, or paragraph where the student being observed has read or seen the printed material being discussed. It involves punctuation, grammatical construction, and syllabification when it is done for the purpose of hyphenating a word. (Example: The teacher asks the student who is being observed, "What kind of punctuation follows a question?")

Category 4: Reading Silently. This category refers to all instances in which the student being observed is reading silently to himself or is silently looking at printed material. (Example: The student being observed is silently reading a story at his desk.)

Category 5: Spelling. This category refers to those instances in which words or parts of words are formed one letter at a time, aloud, to oneself, on the board, or on a sheet of paper. It also includes activities which have to do with individual letters of the alphabet and alphabetizing activities. The dictation of words or sentences by the teacher or students so that the students can write out these words are also included as spelling activities. (Example: The student being observed asks, "How do you spell the word pluck?")

Category 6: Writing. This category refers to those specific activities in which the student being observed is creating or composing his own original work in terms of words, phrases, or sentences. This category does not include copying words, phrases, or sentences from the board or from a book. This category also refers to writing activities such as the teacher writing a story which the student being observed

is making up and dictating to her. (Example: The student being observed is writing a story about what he did last summer.)

Category 7: Listening Instruction. This category includes questions, statements, and actions which refer to reading material that has been or will be read to the student being observed, but which the student himself has not seen or read. Also included in this category are instances in which some person is reading aloud to the student being observed when the material that is being read cannot be seen by the student. (Example: The student being observed listens as the teacher reads him a story. The student does not have any books open in front of him.)

Category 8: Non-Reading Instruction. This category includes those activities which are instructional in content but which are not specific reading activities or activities which refer to material that has been read to the students. (Example: The teacher says to the student being observed, "See the new growth on this piece of moss that I brought in to show you.")

Category 9: Management Instruction. This category includes those instances in which the student being observed is paying attention to transitional activities, managing activities, or directing activities performed by persons or machines in the classroom that facilitate the instruction taking place during reading or other instructional activities. (Example: The teacher says to the student being observed, "Debby, your group is ready to come over here, so come on over.")

Category 10: Positive Feedback. This category includes those instances in which the student being observed is paying attention to actions or words by the teacher, other adult, or machine that praise or encourage the activities of himself or others in the classroom. (Example: The teacher says to the student being observed, "Very good, John.")

Category 11: Negative Feedback. This category includes those instances in which the student being observed is paying attention to actions by the teacher, other adult, or a machine that indicate to a person in the classroom that his answer is wrong or that discipline persons in the classroom for their actions. (Example: The teacher says, "Class, be quiet.")

Category 12: Extraneous. This category includes those instances in which the student being observed is paying attention to irrelevant or incidental comments or actions which are not codeable into any other category. (Example: The student being observed asks the teacher to sign his late slip.)

These Content categories required several special coding rules that were necessary to permit the observers to recognize the categories as discrete. These coding rules are described in detail elsewhere (Quirk, Weinberg, & Nalin, 1973), but one of them is worth noting. This rule dealt with a "carry-over effect" in which pauses in instruction (e.g., whenever the teacher was waiting for a student to answer her question) were coded as part of the Content category that was the focus of the instruction. For example, if the teacher asked the students how to pronounce a word written on the board, and was waiting for a response

from the class when the stopwatch indicated that this event was to be coded, this pause would be coded as Content category 2 (Pronunciation and Word Recognition).

SELECTION OF CLASSROOM OBSERVERS

The student observers were recruited as part of the same procedure by which the teacher observers were recruited.

A total of 27 observers (6 men and 21 women) were trained to use the Student Observation Scale - Reading. They ranged in age from 22 to 71 years with a median age of 36 years. Twenty-four of these observers had graduated from college, and 20 of them had completed student teaching. Of the 16 observers who had had full-time teaching experience, seven had taught in elementary schools, two had taught in secondary schools, while seven had experience teaching in both elementary and secondary schools. Two of these observers were in their first year of teaching. One of them had taught for one year. Two observers had from two to three years of teaching experience, and 11 of them had more than three years of teaching experience.

TRAINING OF CLASSROOM OBSERVERS

A trainer and an assistant trainer conducted three separate one-week training programs for the Student Observation Scale - Reading. This three-week period lasted from October 15 through November 3, 1972. The training programs were located in Princeton, New Jersey, Evanston, Illinois, and Berkeley, California. Each training session lasted for five days. The eight observers who were trained in Evanston, Illinois, on the Student

Observation Scale were also trained on the Teacher Observation Scale during the preceding week.

Each training program began on a Sunday evening and continued until the next Friday afternoon. During the training, both written and audio-tape practice exercises and actual classroom observations were included. Practice classroom coding was included each morning of the training program by having the observers code in pairs, and the reliabilities of the morning's codings were computed each afternoon (with the help of a portable computer terminal) so that the observers could receive daily feedback on their coding progress. The total time spent in training the observers during each training session was approximately 35 hours. A detailed description of the training program is available elsewhere (Quirk, Weinberg, & Nalin, 1973).

The procedure for the reliability study that took place on the last morning of each training session was to have the observers observe a reading class in pairs and to use a single stopwatch to synchronize their codings. These pairs of observers coded a different student's behavior every 15 seconds for a 20-minute observation period. Each observer was then paired with a different observer for a second observation period, and still another different observer for a third observation period. This permitted each observer's coding behavior to be studied in three separate 20-minute observation periods with three different observers. Twenty-one of the observers were paired in this manner, while six of the observers completed only two observation periods of 20 minutes each because the reading classes left on a field trip on the final day of the training during the second week in Berkeley.

The results of the reliability study are presented in Table 6. The individual reliabilities of each pair of observers is reported as well as the total reliability of each observer across all of the other observers with whom he was paired. This latter reliability coefficient was computed by taking the total frequency for each category for the observer across all of his pairings during the last morning of training, and comparing these codings with the total frequency for each category for all of the other observers with whom he was paired during the last morning of the training session. All reliability coefficients reported in Table 6 are Scott's π coefficients (Scott, 1955). One of the observers trained in Princeton during week 1 of the training was not permitted to collect any classroom observation data during the study because his reliability coefficients were judged to be too low. For the remaining 26 observers trained on the Student Observation Scale - Reading. Their reliabilities when computed by using the total codings for all of the observers with whom they were paired on the last morning of the training session were as follows: the reliabilities for the Group of instruction ranged from .81 to 1.0 with a median coefficient of .96; for the Content of instruction, the reliabilities ranged from .67 to .99 with a median coefficient of .90; for the Group-Content dimensions combined into a two-dimensional set of categories (4 Group categories x 12 Content categories), the reliabilities ranged from .62 to .99 with a median coefficient of .86.

SELECTION OF THE READING CLASSES TO BE OBSERVED

For each reading program selected to be studied within each city, a knowledgeable central office staff member or the local reading coordinator

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TABLE 6

STUDENT OBSERVER RELIABILITY ON THE LAST DAY OF TRAINING
(SCOTT'S π COEFFICIENTS)

WEEK 1: Princeton (9 observers)

Observer	Paired with observers	Observer Pairs G	C	G-C	Total across observers with whom paired G	C	G-C
A	E	.77	.56	.50	.81	.67	.62
	B	.78	.41	.33			
	F	.87	.73	.55			
B	E	.81	-.13	-.06	.84	.79	.67
	F	.29	.64	.60			
C	H	.93	.60	.59	.95	.84	.70
	G	.36	.50	.33			
D	G	.94	.83	.66	.96	.89	.83
	H	.93	.96	.93			
	I	.59	.37	.44			
E[1]	F	.93	.83	.78	.89	.61	.58
F					.91	.88	.78
G	I	.95	.76	.60	.88	.85	.74
H					.93	.84	.80
I					.95	.88	.75
W*	H	.83	.75	.75			
	C	.98	.76	.64			
	I	.91	.89	.66			

WEEK 2: Berkeley (10 observers)

Observer	Paired with observers	Observer Pairs G	C	G-C	To ob wh G
A	I	1.0	.83	.85	
	E	1.0	.88	.88	1
B	H	.93	.81	.75	
	D	1.0	.87	.83	.97
C	J	1.0	1.0	1.0	
	F	.88	.86	.75	
	G	1.0	.95	.96	.96
D	E	.94	.91	.88	.96
E					.97
F	J	1.0	.94	.94	
	G	1.0	.91	.92	.96
G	J	1.0	1.0	1.0	.96
H	I	.68	.78	.74	.99
I					.95
J					1.0

G = GROUP
C = CONTENT OF INSTRUCTION
G-C = GROUP-CONTENT COMBINATION

*OBSERVER W IS THE HEAD TRAINER WHO PAIRED WITH THE TRAINEES WHEN AN ODD-NUMBERED TOTAL OF OBSERVERS WAS TRAINED IN A SITE.

[1]OBSERVER E OF WEEK 1 WAS NOT PERMITTED TO COLLECT ANY CLASSROOM OBSERVATION DATA DURING THE STUDY BECAUSE THE RELIABILITY COEFFICIENTS WERE NOT SUFFICIENTLY HIGH.

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TABLE 6

STUDENT OBSERVER RELIABILITY ON THE LAST DAY OF TRAINING
(SCOTT'S π COEFFICIENTS)

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WEEK 2: Berkeley (10 observers)

Observer	Paired with observers	Observer Pairs G	C	G-C	Total across observers with whom paired G	C	G-C
	I	1.0	.83	.85	1.0	.86	.87
	E	1.0	.88	.88			
	H	.93	.81	.75	.97	.92	.84
	D	1.0	.87	.83			
	J	1.0	1.0	1.0	.96	.81	.79
	F	.88	.86	.75			
	G	1.0	.95	.96			
	E	.94	.91	.88	.96	.90	.89
					.97	.92	.90
	J	1.0	.94	.94	.96	.91	.87
	G	1.0	.91	.92			
	J	1.0	1.0	1.0	.96	.97	.94
	I	.68	.78	.74	.99	.90	.85
					.95	.82	.81
					1.0	.99	.99

WEEK 3: Evanston (8 observers)

Observer	Paired with observers	Observer Pairs G	C	G-C	Total across observers with whom paired G	C	G-C
A	E	1.0	.91	.92	1.0	.97	.98
	H	1.0	1.0	1.0			
	C	1.0	1.0	1.0			
B	D	1.0	.92	.93	.93	.94	.91
	G	.92	.92	.92			
	F	.78	1.0	.86			
C	H	.89	.86	.88	.96	.95	.94
	E	.97	.94	.90			
D	G	.93	1.0	.96	.98	.96	.93
	F	.95	.97	.90			
E	H	.88	1.0	.88	.87	.91	.86
F	G	1.0	.89	.91	.92	.96	.91
G					.96	.95	.95
H					.97	.96	.95

was asked to nominate one or more schools in the district which were using the reading program in a typical manner. These recommendations were an attempt to receive suggestions about the typical school or schools in the district using the selected compensatory reading program.

Within each school that was selected to be included in the classroom observations, the specific reading classes in grades 2, 4, 6 to be observed were selected by a logical process that included a number of variations. A list of teachers and the times of their reading classes was prepared for each of these schools. It was decided that each city would have a maximum of nine classes to be observed in order to reduce the amount of time it would take to collect the classroom observation data across all of the cities. If there were nine or less than nine classes available to be observed in a school, all of the classes were chosen to be observed.

When there were more than nine classes available to be observed in a school, the following rules were used. Within each school, if there were several teachers teaching several classes at each of these grade levels, the classes to be observed were randomly selected within each grade level. If there were only a few classes at a grade level, all of these classes were selected for observation. When students in a class were from mixed grade levels, these classes were not selected if sufficient classes were available containing students at one of the grades 2, 4, or 6. If bilingual classes were identified at the sampling stage, they were automatically excluded from the sample. If a teacher was teaching several reading classes at the same grade level,

only one of this teacher's classes was selected to be observed. It was not possible to include classes from each of the grades 2, 4, 6 in every school in the sample because not all of the schools were offering compensatory reading classes to all three of these grade levels.

The local coordinator was asked to notify the teachers selected to participate in the study that their class would be visited for a total of 20 minutes on nine separate days over a period of several weeks. He was asked to explain that these visits would be unannounced, that the data collected on individual teacher's classes would not be reported to any school official or be seen by anyone other than the observers and the research team, and that the teachers should proceed with their normal activities whether or not the observers were present. The observers were also informed during the training week of the confidentiality of the information they were gathering.

DATA COLLECTION

The classroom observations data for the Student Observation Scale were collected from October 26, 1972 until February 8, 1973. A total of 67 classes in 13 schools in 10 cities were selected to be observed. There were 41 second grade classes, 18 fourth grade classes, and eight sixth grade classes selected to be observed. Each class was supposed to be observed on nine separate days for 15 minutes of coding each day for a total of 2 1/4 hours of observation of each class. The distribution of these classes by type of reading program is reported separately by grade level in Table 7.

TABLE 7

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SELECTION OF COMPENSATORY READING CLASSES BY PROGRAM FOR STUDENT OBSERVATION

Type of Reading Program	Number of Classes Selected to be Observed			Number of Classes Observed on Nine Separate Occasions		
	Grade 2	Grade 4	Grade 6	Grade 2	Grade 4	Grade 6
Degateno Reading Program-- Words in Color	3	3	2	3	3	2
Title I	3	3	0	3	3	0
Distar Open Court	7	0	0	7	0	0
Distar Houghton-Mifflin	3	3	3	3	3	3
Alpha One	2	0	0	2	0	0
Reading Tutorial Program	2	3	0	2	3	0
Sullivan Scott-Foresman	4	2	3	3	2	3
Special Reading Program	6	2	0	6	2	0
Exemplary Center of Reading Instruction Project to Improve Reading Performance in Utah Schools	7	2	0	7	2	0
Exemplary Center of Reading Instruction Project to Improve Reading Performance in Utah Schools	4*	0	0	1*	0	0
Totals:	41	18	8	37	18	8

The observers were asked to distribute these nine observations so that three of them took place during the first third of the reading period, three of them took place during the middle third of the reading period, and three of them took place during the last third of the reading period. No classes taught by substitute teachers were observed during the study.

During each observation visit, the observers were instructed to spend the first five minutes of the 20-minute observation period orienting themselves to the activities going on in the classroom. The observer then coded for 15 minutes using his stopwatch and coding sheet.

There were nine observations completed on 63 of these 67 classes (94 percent completion rate). An observer trained to code on the Teacher Observation Scale - Reading, and an observer trained to code on the Student Observation Scale - Reading, were permitted to work in pairs during the data collection. The observers worked in pairs for 65 percent of these classroom observation periods.

Incomplete Data

From a total of 67 classes which were selected to be observed with the Student Observation Scale - Reading, 63 of these classes had nine observations completed and these classes were included in this study. Four classes were not included for a variety of reasons. In one city, four classes which were observed nine times each, were combined into one class for this study since the teacher met with the same students for approximately two and one-half hours every day; it was decided that this class should be treated as a single class rather than as four separate classes. The nine observations used to represent this class were taken

from the pool of 36 observations made for the four separate classes by ranking these observations chronologically and selecting the first nine observations made by the observers. If more than one observation was made on a particular day, the first 15-minute observation of that day was chosen.

One teacher's class was not included because this teacher taught other teachers' classes as well as her own class and there were not enough observations of this teacher instructing her designated students.

DISCUSSION OF RESULTS

The results of the classroom observations of the student behavior for the 63 compensatory reading classes are summarized in Table 8. The data for the Group of instruction and the Content of instruction are summarized in Figure 2 as well. In Table 8, the percent of time spent in each category appears in the first row of each cell; this percentage was computed by dividing the total frequency of occurrence of each category across the classes by the total number of codings across all of the classes (35,292 codings). The resulting number represents the average percent of time spent in each category across all of the visits to these 63 compensatory reading classes. In Table 8, the standard deviation across classes of the percent of time spent in each category by each class appears in parentheses in each cell. The rank order of the percent of time for each subcategory within its corresponding major category appears in the box in the lower-right corner of each cell.

TABLE 8

PERCENTAGE OF TIME SPENT ACROSS ALL CLASSES (N = 63) IN EACH GROUP-CONTENT CATEGORY IN TERMS OF STUDENT BEHAVIOR

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Group of Instruction	Content of Instruction												
	Comp.	Pron. Wd. Rec.	Lang. Struc.	Rdg. Sil.	Sp.	Writing	List. Inst.	Non-Rdg. Inst.	Man. Inst.	Pos. Fdbk.	Neg. Fdbk.	Ex.	Totals
Teacher	5.26 (5.51) 6	13.41 (9.55) 1	0.52 (1.02) 29	4.32 (4.32) 9	6.25 (8.17) 5	0.14 (0.65) 39	3.10 (3.30) 11	3.60 (6.54) 10	8.35 (8.32) 2	1.39 (1.48) 21	1.04 (1.10) 23	0.56 (0.66) 28	47.94 (23.11) 1
Other Adult	0.52 (1.18) 30	2.66 (4.28) 12	0.25 (1.09) 36	0.63 (1.16) 27	1.72 (3.72) 18	0.03 (0.17) 41	0.82 (2.42) 25	2.18 (4.33) 16	2.22 (2.17) 15	0.32 (0.79) 34	0.29 (0.49) 35	0.25 (0.37) 37	11.89 (15.90) 3
Peer	0.20 (0.64) 38	1.07 (2.01) 22	0.01 (0.06) 45	0.36 (0.63) 33	0.47 (0.74) 31	0.03 (0.19) 42	0.02 (0.07) 43	0.76 (1.34) 26	0.92 (0.90) 24			5.16 (4.06) 8	8.99 (5.77) 4
Alone	1.51 (2.26) 19	2.43 (4.30) 13	0.39 (1.29) 32	7.99 (8.01) 3	5.22 (5.87) 7	1.46 (3.00) 20	0.06 (0.30) 40	2.23 (3.65) 14	1.92 (1.96) 17	0.02 (0.07) 44	0.01 (0.05) 46	7.95 (4.09) 4	31.19 (21.69) 2
Totals	7.48 (6.38) 7	19.57 (10.45) 1	1.16 (2.29) 12	13.30 (8.10) 5	13.65 (11.30) 3	1.67 (3.28) 10	4.00 (4.17) 8	8.77 (10.41) 6	13.41 (4.49) 4	1.73 (1.80) 9	1.34 (1.14) 11	13.91 (6.93) 2	

The weighted percent of time spent in each category across classes appears in each cell. The standard deviation across classes of the percent of time spent in each category by each class appears in parentheses in each cell. The rank order of occurrence of each category appears in the box in the lower-right corner of each cell.

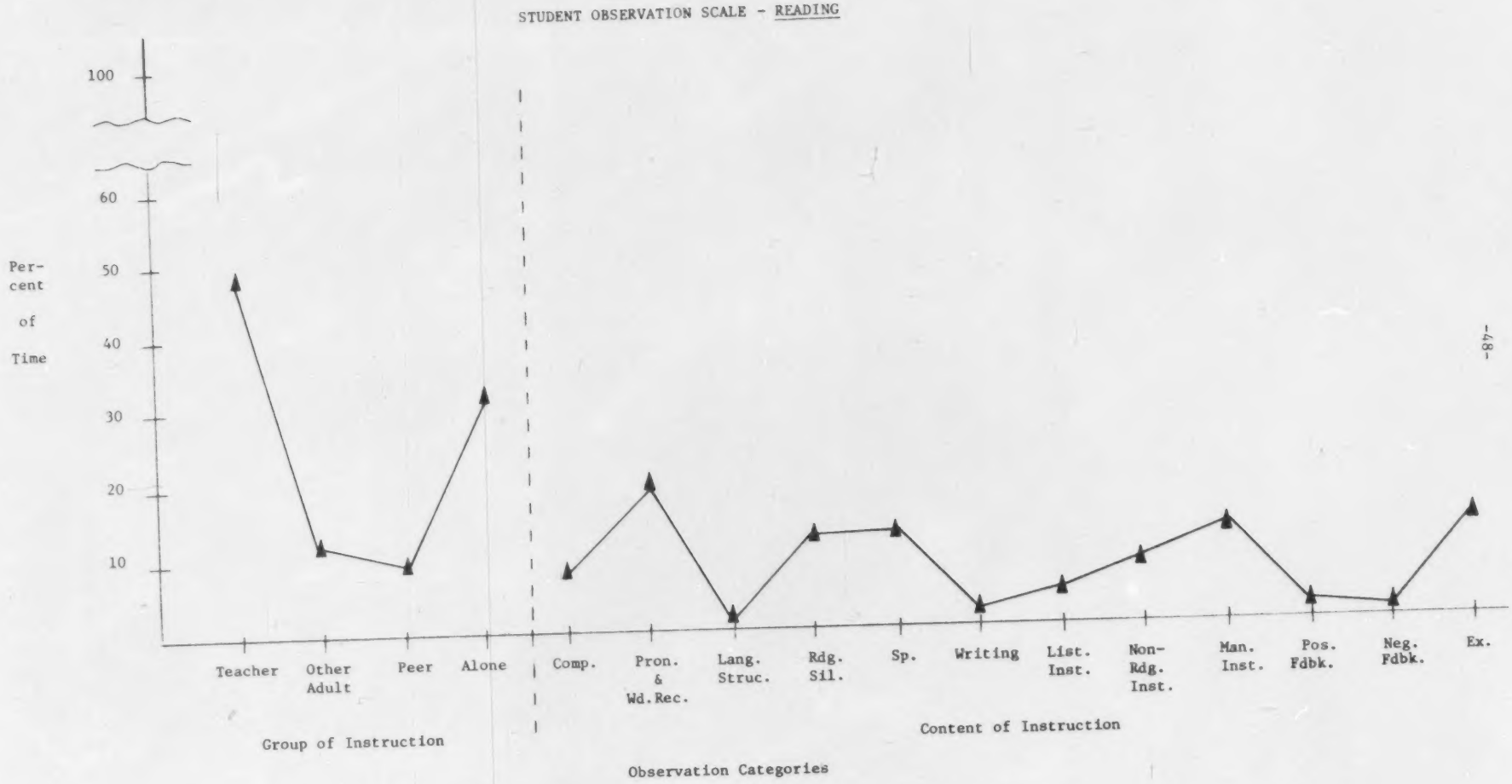

Figure 2. Percent of Time Spent in Each Activity by the Compensatory Reading Students

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A total of 540 events were supposed to be coded for each class (9 visits per class x 15 minutes of coding per visit x 4 codings per minute). In fact, the number of events coded per teacher's class ranged from 504 to 720 events with a mean of 560.19 events and a standard deviation of 59.84. In one city the teachers met privately with two students in a conference room while several other students in this class worked on reading activities outside of this conference room under the supervision of teacher aides. In order to cut down on the amount of interruption within the conference room, the observers were instructed to code the students' behavior within the conference room for ten minutes and then to code the students' behavior outside of this conference room for another ten minutes during each visit. In this city, student behavior was coded for a total of 20 minutes for each of nine visits instead of the usual 15 minutes of coding, and in these eight classes the observers coded an average of 715 events per class instead of the usual 540 events.

A single change in the coding of the observers was made during the processing of the data. The definitions of the Content categories for both Positive Feedback (category 10) and Negative Feedback (category 11) required that the student be paying attention to one of these types of feedback from the teacher, some other adult, or a machine. These definitions did not permit one student to present Positive or Negative Feedback to another person, and these activities were supposed to be coded as Extraneous (category 12). The observers made this error in coding once for category 10 and nine times for category 11, and these

10 codings (out of the total of 35,292 codings) were changed to Peer category 12 in processing the data.

Summary of the Results for the Group of Instruction

The results of the observations for the Group of instruction indicated that the students were paying attention either to the teacher or to a group containing the teacher 48% of the time. The students were coded as being Alone for 31% of the time. The students were paying attention to an adult other than the teacher 12% of the time, and to their peers 9% of the time.

Summary of the Results for the Content of Instruction

The students in the compensatory reading classes spent the greatest amount of their time in Pronunciation and Word Recognition activities (20%). The second most frequent activity was Extraneous activities (14%). The third most frequent activity was Spelling (14%), while the fourth was Management Instruction (13%). Silent Reading was the fifth most frequent activity (13%), followed by Non-Reading Instruction (9%), Comprehension activities (7%), Listening Instruction activities (4%), Positive Feedback activities (2%), Writing activities (2%), Negative Feedback activities (1%), and Language Structure activities (1%).

These Content categories could be combined in a number of ways to determine the percent of time that the students spent in reading activities. If Content categories 1-4 (Comprehension, Pronunciation and Word Recognition, Language Structure, and Reading Silently) are combined, this

would indicate that the students spent 42% of their time in reading activities; if Content categories 5 (Spelling), 6 (Writing), and 7 (Listening Instruction) were also included, the students spent 61% of their time in reading and reading-related activities.

Summary of the Results for the Two-Dimensional Group-Content of Instruction

The two-dimensional summary of student behavior presented within Table 8 provides some interesting results. If we restrict our discussion to those two-dimensional categories in which the students spent at least 3% of their time, the students focused their behavior within 11 categories. The students spent the greatest amount of their time attending to the teacher during Pronunciation and Word Recognition activities (13%). The second most frequent activity involved attending to the teacher during Management Instruction activities (8%), followed by the student being alone in Reading Silently (8%) and in Extraneous activities (8%). The fifth and sixth most frequent activities both involved attending to the teacher in terms of Spelling activities (6%) and Comprehension activities (5%). The seventh most frequent activity involved the student being alone during Spelling activities (5%), while the eighth most frequent activity involved the student paying attention to another student during Extraneous activities (5%). The ninth, tenth, and eleventh most frequent activities all involved the student attending to the teacher in terms of Reading Silently (4%), Non-Reading Instruction (4%), and Listening Instruction (3%).

These 11 Group-Content activities represented a total of 71% of the classroom activities of the students. In terms of the Group of instruction, these activities were distributed as follows: Teacher (44%), Alone

(21%), and Peer (5%). In terms of the Content of Instruction, these activities were distributed as follows: Pronunciation and Word Recognition activities (13%), Extraneous activities (13%), Reading Silently (12%), Spelling (11%), Management Instruction (8%), Comprehension (5%), Non-Reading Instruction (4%), and Listening Instruction (3%).

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PART III: Summary of Teacher and Student Behavior During Compensatory Reading Instruction

Teacher Behavior During Reading Instruction

Nine separate visits were made by classroom observers to each of 135 classes to study teacher behavior during compensatory reading instruction. On the average, the teachers spent 45% of their time talking and 27% of their time attending to students' talking. No one was talking 25% of the time. The teachers spent 2% of their time attending to a machine and 1% of their time attending to talking by some other adult.

Although the teachers talked less than half of the time during compensatory reading instruction, this Mode of instruction was the dominant method of instruction since it was utilized almost twice as often as any other Mode of instruction.

In terms of the Content of instruction, the teachers spent the largest amount of their time in Management Instruction activities (30%), Pronunciation and Word Recognition activities (26%), Comprehension activities (12%), and Spelling activities (9%). The teachers spent less than five percent of their time in each of the remaining Content categories.

The teachers spent a total of 56% of their time in activities which can be considered directly related to instruction in reading: Comprehension, Pronunciation and Word Recognition, Language Structure, Reading Silently, Spelling, and Listening Instruction.

The teachers evenly distributed their time between positive and negative feedback activities, as each of these types of content activity occupied about 3% of the teachers' time. Instructional activities which were not related to reading activities, such as art, music, mathematics activities and the like, occurred a little more than 4% of

the time. This meant that the teachers were functioning effectively in terms of relating the activities in the classroom to reading instruction. Similarly, the fact that the teachers spent less than 4% of their time in Extraneous activities indicated not only that the teacher observation instrument was working efficiently because this category was coded infrequently, but also that the teachers were making very efficient use of their time in organizing their behavior during reading instruction within the categories related to actual instruction in reading.

At first glance, the fact that the teachers spent 30% of their time in Management Instruction activities might indicate that this activity occupied too much of the teachers' time. While it is true that the teachers spent more time in this activity than in any of the other Content activities, this percentage of time compares favorably with the percent of time spent in total systems management activities (Quirk, Steen, & Lipe, 1971) by teachers in individualized instruction (51%) and by teachers in regular classrooms (36%). A teacher during the course of instruction must give many instructions both to individual students and to the class as a whole, and it would be unrealistic and unfair to the teachers to expect that these "housekeeping" activities should occur infrequently during the normal course of reading instruction.

The fact that the teachers spent more than 25% of their time working with students in involving Pronunciation and Word Recognition activities is notable. These activities are most likely the ones which a casual observer would recognize as reading activities, and this activity occurred frequently during compensatory reading instruction. Comprehension

activities occurred almost 12% of the time while Spelling activities occurred 9% of the time, and these results were also note worthy.

When the Mode-Content activities of the teachers were combined into two-dimensional categories, the teachers spent at least 3% of their time in each of the nine categories summarized in Table 9. These nine categories represented 71% of the teachers' time. With respect to the Mode of instruction, the teachers were talking for 33% of this time. Further, the teachers were attending to pauses in which no one was talking for 19% of this time, and attending to talking by the students for 19% of this time. In terms of the Content of instruction, these nine categories were distributed among Management Instruction activities (28%), Pronunciation and Word Recognition activities (26%), Comprehension activities (11%), and Spelling activities (7%).

Student Behavior During Reading Instruction

Nine separate visits were made by classroom observers to each of 63 classes to study student behavior during compensatory reading instruction. On the average, the students spent 48% of their time attending to the teacher or a group containing the teacher, 31% of their time alone, 12% of their time attending to some adult other than the teacher, and 9% of their time attending to other students. Thus, the students were paying attention either to the teacher or to some other adult for 60% of their time. The fact that the students were not paying attention to any adult or any other student for almost one-third of their time is notable in that it indicates that the students exercised a considerable control over their own thoughts and activities for a significant amount of the time.

TABLE 9

MODE-CONTENT CATEGORIES OF TEACHER BEHAVIOR
THAT OCCURRED AT LEAST 3% OF THE TIME

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Rank Order	Category	Percent of Time
1	Teacher Talk: Management Instruction	14.83
2	Student Talk: Pronunciation & Word Recognition	14.40
3	No Talk: Management Instruction	12.90
4	Teacher Talk: Pronunciation & Word Recognition	8.18
5	Teacher Talk: Comprehension	6.32
6	Student Talk: Comprehension	4.38
7	Teacher Talk: Spelling	3.77
8	No Talk: Pronunciation & Word Recognition	3.06
9	No Talk: Spelling	3.04
	Total	70.88

Summary of Mode Dimension for These Nine Categories		Summary of Content Dimension for These Nine Categories	
Teacher-Talk	33.10%	Pronunciation & Word Recognition	25.64%
Student-Talk	18.78%	Comprehension	10.70%
No-Talk	19.00%	Spelling	6.81%
		Management Instruction	27.73%

With respect to the Content of instruction, the students spent the largest amount of their time in Pronunciation and Word Recognition activities (20%). The students spent 14% of their time in Extraneous activities, 14% of their time in Spelling activities, 13% of their time attending to Management Instruction activities, and 13% of their time Reading Silently. The students spent 9% of their time in instructional activities which were not related to reading and 7% of their time in Comprehension activities. The students spent 4% or less of their time in the remaining Content categories.

The students spent 61% of their time in activities which can be considered directly related to instruction in reading: Comprehension, Pronunciation and Word Recognition, Language Structure, Reading Silently, Spelling, Writing, and Listening Instruction.

The students evenly distributed their time in attending to Positive Feedback (1.7%) and Negative Feedback (1.3%).

When the Group-Content activities of the students were combined into two-dimensional categories, the students spent at least 3% of their time in each of the 11 categories summarized in Table 10. These 11 categories represented 71% of the students' time. In terms of the Group of instruction for these 11 categories, the students distributed these activities by attending to the teacher for 44% of the time, by being alone for 21% of the time, and by attending to other students for 5% of the time. In terms of the Content of instruction for these 11 categories, the students spent 13% of the time in terms of Pronunciation and Word Recognition activities, 13% of the time in Extraneous activities, 12% of the time in

TABLE 10

GROUP-CONTENT CATEGORIES OF STUDENT BEHAVIOR

THAT OCCURRED AT LEAST 3% OF THE TIME

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Rank Order	Category	Percent of Time
1	Teacher: Pronunciation and Word Recognition	13.41
2	Teacher: Management Instruction	8.35
3	Alone: Reading Silently	7.99
4	Alone: Extraneous	7.95
5	Teacher: Spelling	6.25
6	Teacher: Comprehension	5.26
7	Alone: Spelling	5.22
8	Peer: Extraneous	5.16
9	Teacher: Reading Silently	4.32
10	Teacher: Non-Reading Instruction	3.60
11	Teacher: Listening Instruction	3.10
	Total	70.61

Summary of Group Dimension for These Eleven Categories		Summary of Content Dimension for These Eleven Categories	
Teacher	44.29%	Pronunciation & Word Recognition	13.41%
Alone	21.16%	Comprehension	5.26%
Peer	5.16%	Reading Silently	12.31%
		Spelling	11.47%
		Listening Instruction	3.10%
		Non-Reading Instruction	3.60%
		Management Instruction	8.35%
		Extraneous	13.11%

Reading Silently, and 11% of the time in Spelling activities. In terms of these eleven categories, the students spent 8% of the time in Managing Instruction activities, 5% of the time in Comprehension activities, 4% of the time in Non-Reading Instruction, and 3% of the time in Listening Instruction.

The Contrast Between Teacher and Student Behavior

The contrast between teacher and student behavior in terms of the Content of instruction dimension is summarized in Table 11. One of the more interesting contrasts between the teachers' and students' behavior was in the Content category dealing with Management Instruction activities. While the teachers spent 30% of their time in these activities, the students spent only 13% of their time paying attention to Management Instruction activities, a difference of almost 17%. Apparently the teachers' focus on Management Instruction activities affected some of the students in the class while the other students did not pay attention to this activity and therefore had more free time to do other activities.

One of the things the students do more than the teacher is to concentrate on Extraneous activities that are either not related to instruction or which were unable to be coded by the observers into any of the other categories. When the time spent both in Management Instruction and in Extraneous activities is combined, the teachers spent 34% of their time in these activities compared to 27% by the students, a difference of 7% in these two types of activities.

TABLE 11

CONTRAST BETWEEN TEACHER AND STUDENT BEHAVIOR
IN TERMS OF THE CONTENT OF INSTRUCTION

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Category	Percent of time		
	Student Behavior	Teacher Behavior	Difference
Comprehension	7.48	11.93	-4.45
Pronunciation & Word Recognition	19.57	26.15	-6.58
Language Structure	1.16	3.13	-1.97
Reading Silently	13.30	1.92	+11.38
Spelling	13.65	9.48	+4.17
Listening Instruction	4.00	3.05	+0.95
Non-Reading Instruction	8.77	4.44	+4.33
Management Instruction	13.41	30.24	-16.83
Positive Feedback	1.73	2.93	-1.20
Negative Feedback	1.34	3.10	-1.76
Extraneous	13.91	3.63	+10.28
Writing Instruction	1.67	N/A	N/A

The 13% of time spent by the students in Managing Instruction activities compares favorably to the amount of time spent by students in transitional and non-productive activities in other contexts (Lipe, Steen, & Quirk, 1972); in that study the students in individualized instruction classes spent 35% of their time in these activities compared to 20% by students in regular classes.

There was a large difference between teacher and student behavior in terms of the amount of time spent in Reading Silently; the students spent 11% more time than the teachers in this activity.

Of the time spent in actual reading activities both the teachers and students spent the most time paying attention to Pronunciation and Word Recognition activities. The students spent 7% less time paying attention to Pronunciation and Word Recognition activities than the teachers. The students also spent 4% less time paying attention to Comprehension activities than the teachers but spent 4% more time paying attention to Spelling activities than the teachers. The students also spent 4% more time than the teachers paying attention to Non-Reading activities. There was less than a 2% difference between the behavior of teachers and students in the remaining Content categories.

Summary and Conclusions

The description of teacher and student behavior during compensatory reading instruction is a necessary first step in the systematic study of the relationship between what the teachers and students do during reading instruction and the subsequent development of the students in reading ability. How much time should teachers and students spend in

activities involving Pronunciation and Word Recognition? Do those classes in which students spend more time in Comprehension activities improve more in reading ability? What is the relationship between the amount of time spent in Spelling activities and the students' improvement in reading scores? Questions such as these can only be answered by relating teacher and student behavior during reading instruction to student residual gain scores. This line of research may prove fertile in generating hypotheses about the relationship between teacher and student behavior and the students' subsequent development in reading ability, and questions such as these will be explored in the next phase of this project.

References

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APPENDIX A

CLASSROOM ENVIRONMENT FORM

Description of the Classroom Environment Form

The observers who coded the classroom activities using the Teacher Observation Scale - Reading, spent two minutes at the end of each observation period filling out the Classroom Environment Form (CEF) which described the physical characteristics of the classroom. Table 1A shows a sample of a CEF. The observers were instructed on how to fill out the CEF during the training week and were given opportunities to practice filling out the form in classrooms.

Out of the 135 classes which were observed 9 times with the Teacher Observation Scale - Reading, 118 classes had 9 complete CEF's each (85% completion rate). The following descriptions were taken from the CEF's of these 118 classes.

Means and standard deviations were calculated for each classroom for items 1, 2 and 16 - 25. The mean and standard deviations of these means were then computed and the results are presented in Table 2A.

Item 25 ("other") was added during the data analysis to account for additional equipment not listed on the form which the observers found in the classroom and noted.

The percent of classes in which the "yes" was circled 9 times, 8 times, 7 times, etc., was computed for items 3 - 15. These results are presented in Table 3A.

Discussion of results

As found in Table 2A, the mean number of adults present in the classroom was 1.7. Most classrooms, therefore, usually had an aide in addition to the regular teacher. Some classes had a low of only

one adult in the classroom (column IV) while other classrooms had a high of 8 adults in the classroom (column V).

The mean number of students in each class was 20.2. The individual class means ranged from 2 students per class to 32 students per class.

As can be seen from Table 2A, items 16 - 25 have means which are less than 1. This suggests that most classes did not contain much audio-visual equipment. Of all the equipment listed on the CEF, tape-recorders (.55), record players (.53) and "other" equipment (.56) were found most often in the classroom. A large variety of equipment was listed in the "other" category. No one type of equipment occured with any frequency. Overhead projectors and teletype machines are examples of what was included in this category.

In examining the findings in Table 3A, the three items which are most often present in the classroom for all 9 visits (column X) are: item 7 (74%), item 4 (70%) and item 15 (66%). Thus, two-thirds or more of the classrooms always contained displays and charts that included words (item 7), storybooks (item 4), and a table surrounded by chairs for student work (item 15).

The three items which were least often found in the classroom (column I) are: item 11 (79%), item 10 (76%), and item 6 (46%). Nearly half or more of the classrooms never had live animals (item 11), travel posters (item 10) or a set of encyclopedias (item 6) in the classroom.

Table 1A
A Sample of a Classroom Environment
Form with Item Numbers Added

Name of Observer _____
Date _____
Teacher _____
Time Start _____ Finish _____
School _____
Grade _____
City _____

CLASSROOM ENVIRONMENT FORM (CEF)

Item 1 ____ 1. How many adults, including the teacher, are there in the classroom?

Item 2 ____ 2. How many students are there in the classroom?

3. Circle the answer to the following questions about the classroom:

Item 3 yes no (a) Are there magazines accessible to the students?

Item 4 yes no (b) Are there story books, other than textbooks, available to the studen

Item 5 yes no (c) Is there a dictionary in the classroom?

Item 6 yes no (d) Does the classroom contain a set of encyclopedias?

Item 7 yes no (e) Are there words included in displays or charts in the room?

Item 8 yes no (f) Is there a globe in the classroom?

Item 9 yes no (g) Are the letters of the alphabet printed in large letters somewhere in the classroom?

Item 10 yes no (h) Are there travel posters in the classroom?

Item 11 yes no (i) Are there live animals in the classroom?

Item 12 yes no (j) Are there large maps in the classroom?

Item 13 yes no (k) Is the art work of the students on display?

Item 14 yes no (l) Are the desks arranged in rows?

Item 15 yes no (m) Is there a table with chairs around it where the students can go to work?

4. Write the number of pieces of equipment accessible to the students in this classroom for each type of equipment listed:

Item 16 ____ tape recorders

Item 17 ____ typewriters

Item 18 ____ slide projectors

Item 19 ____ movie projectors

Item 20 ____ controlled readers

Item 21 ____ television sets

Item 22 ____ record players

Item 23 ____ film-strip projectors

Item 24 ____ language masters

Item 25 ____ other

Table 2A

Means and Standard Deviations of Mean Responses to Selected Items from the Classroom Environment Form

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	I N	II MEAN	III SD(N)	IV LOW	V HIGH
ITEM # 1	118	1.7017	1.1744	1.0000	8.4444
ITEM # 2	118	20.2299	6.2911	2.0000	32.0000
ITEM # 16	118	0.5508	0.8995	0.0	4.8889
ITEM # 17	118	0.1008	0.2718	0.0	1.0000
ITEM # 18	118	0.1158	0.2409	0.0	1.0000
ITEM # 19	118	0.1337	0.2487	0.0	1.0000
ITEM # 20	118	0.1657	0.4088	0.0	2.7778
ITEM # 21	118	0.3239	0.4322	0.0	1.1111
ITEM # 22	118	0.5311	0.4694	0.0	2.1111
ITEM # 23	118	0.3041	0.5598	0.0	3.6667
ITEM # 24	118	0.1055	0.2492	0.0	1.0000
ITEM # 25	118	0.5603	2.2082	0.0	14.0000

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Table 3A

Percents of Time the "Yes" Response Appeared 1 - through 9 times per class

	I 0-YES	II 1-YES	III 2-YES	IV 3-YES	V 4-YES	VI 5-YES	VII 6-YES	VIII 7-YES	IX 8-YES	X 9-YES
ITEM # 3	29.66	5.93	5.08	4.24	6.78	5.08	6.78	9.32	12.71	14.41
ITEM # 4	3.39	0.0	1.69	0.85	0.85	2.54	1.69	4.24	14.41	70.34
ITEM # 5	10.17	2.54	3.39	1.69	2.54	6.78	5.93	6.78	14.41	45.76
ITEM # 6	45.76	5.93	3.39	3.39	5.08	4.24	0.85	3.39	5.93	22.03
ITEM # 7	3.39	0.0	0.0	0.85	2.54	3.39	2.54	2.54	11.02	73.73
ITEM # 8	27.12	5.08	5.93	6.78	5.08	0.0	0.0	2.54	9.32	38.14
ITEM # 9	21.19	4.24	1.69	0.0	0.85	0.85	0.85	1.69	7.63	61.02
ITEM #10	76.27	11.02	4.24	1.69	1.69	0.0	1.69	0.0	0.0	3.39
ITEM #11	78.81	5.08	1.69	3.39	0.85	0.0	1.69	0.85	1.69	5.93
ITEM #12	36.44	2.54	6.78	3.39	5.93	3.39	2.54	5.93	5.93	27.12
ITEM #13	13.56	3.39	0.85	0.85	1.69	5.93	5.93	10.17	18.64	38.98
ITEM #14	38.98	6.78	3.39	5.08	1.69	2.54	3.39	2.54	5.93	29.66
ITEM #15	5.93	1.69	0.85	0.85	1.69	1.69	2.54	5.93	12.71	66.10